

THE CHEMIST

March, 1956

VOLUME XXXIII



NUMBER 3



Harry B. McClure
Receives Honorary AIC Membership
(See Page 85)



NOW! "SINGLE TRIP" CASES AND BOTTLES for Baker & Adamson "C. P." Acids

**NO RETURNS! NO DEPOSITS!
NO RECORD KEEPING!
NO RETURN FREIGHT COSTS!**

Baker & Adamson offers an important new development in packaging Sulfuric, Hydrochloric and Acetic Acids, and Ammonia: no-deposit "Single Trip" shipping cases with non-returnable bottles! This special heavy duty case holds six five-pint bottles . . . eliminates deposits, record keeping, the trouble of making returns.

Lighter Weight! Lower Freight Costs!

The B&A case is made of double strength corrugated fiberboard, with bottles protected by special "cushions." Its tare weight is just 5 pounds, compared to 16 pounds for returnable 9-bottle wood case . . . or just one-half the tare per bottle. In addition, you can store 25% more acid in the same space with this case than

with a wood case. The new bottles also weigh less . . . 32 ounces as compared to 42 ounces for returnable bottles.

With this "Single Trip" unit, there are no return freight charges for you to pay, and incoming freight costs are less, too. For most users, the modest increased charge per unit on this case will be more than offset by these direct freight savings as well as by reduced handling and accounting costs.

Same High Quality!

When you buy Baker & Adamson "C.P." Acids in this "Single Trip" shipper, you get the same high Reagent A.C.S. quality, the same convenience and safe handling features as always.

For information on availability in your area, phone or write your nearest B&A office.



BAKER & ADAMSON *Reagents*

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Offices: Albany* • Atlanta • Baltimore* • Birmingham* • Boston* • Bridgeport*
Buffalo* • Charlotte* • Chicago* • Cleveland* • Denver* • Detroit* • Houston*
Jacksonville • Kalamazoo • Los Angeles* • Milwaukee • Minneapolis • New York*
Philadelphia* • Pittsburgh* • Providence* • St. Louis* • San Francisco* • Seattle
Kennewick* and Yakima (Wash.)

In Canada: The Nichols Chemical Company, Limited • Montreal* • Toronto* • Vancouver*
SETTING THE PACE IN CHEMICAL PURITY SINCE 1882

*Complete stocks carried here

When contacting the advertiser, please mention THE CHEMIST.

KEEPING UP WITH JET AIRPLANES?



Some of the same type of engineering development work, which produced jet airplanes and such sensational progress in the aviation industry, has been done on various types of stationary jets. While results are not as spectacular, improvements have been even greater percentage-wise in some smaller industries.

For example, the jet heater, working at very high velocity, possibly on corrosive liquids, will cost a very small fraction of the price of a surface heater. When designed properly, the heater can also raise the pressure of the liquid substantially and completely eliminate one or more pumps, which can be quite expensive if made from special materials.

A jet absorber is another good ex-

ample. In some cases, a unit the approximate size of a man's arm can take the place of an absorption tower 3 feet in diameter and 10 or 12 feet high, with tremendous savings in first cost and no increase in operating cost. The absorber can literally supersaturate a liquid with a gas by discharging at a higher pressure than desired. Equilibrium is then established by reducing the pressure and liberating some gas, leaving a completely saturated solution at any desired pressure within certain ranges.

Of course, progress has also been made in efficiency and dependability of the best known application of industrial jets, which is steam jet vacuum equipment and vacuum refrigeration. Information on any of this type of equipment is available on request.

EVACTOR Steam Jet air pumps, Boosters and Thermo-compressors
CHILL-VECTOR Refrigerating Equipment
CONDENSERS, Surface, Jet and Barometric
AQUA-VECTORS, Water Jet Vacuum Pumps
JET MIXERS, Absorbers and Heaters
JET FUME SCRUBBERS
JET PUMPS and Special Jets

Croll-Reynolds CO., INC.

Main Office: 751 Central Avenue, Westfield, N. J.
New York Office: 17 John St., New York 38, N. Y.

When contacting the advertiser, please mention THE CHEMIST.

The CHEMIST

Reg. U. S. Pat. Off.

Publication of
THE AMERICAN INSTITUTE OF CHEMISTS, INC.
60 East 42nd street, New York 17, N. Y.

Entered as second class matter April 8, 1936 at the Post Office at New York, N. Y., under Act of August 24, 1912. Issued monthly.

Subscription price, \$2.00 a year to Members, \$3.00 to Non-Members. Single copy, this issue, \$0.25. Copyright, 1956 by THE AMERICAN INSTITUTE OF CHEMISTS, INC.

Volume XXXIII

March, 1956

Number 3

Editor: V. F. KIMBALL

Editorial Advisory Board

RAYMOND E. KIRK

WALTER J. MURPHY

Contributing Editors

Lawrence H. Flett, 15 Beechwood Lane, Scarsdale, N. Y.

D. H. Killeffer, 168 Westchester Ave., Tuckahoe 7, N. Y.

Dr. Frederick G. Sawyer, Ralph M. Parsons Co., 617 So. Olive St., Los Angeles, Calif.

Florence E. Wall, Consultant, Writer, 210 East 68th Street, New York, N. Y.

Martin B. Williams, P. O. Box 215, Centerville, Alabama

Department Editors

Condensates, Dr. Ed. F. Degering

Opportunities, Doris Eager

Chemical Books Abroad, Rudolph Seiden

THE AMERICAN INSTITUTE OF CHEMISTS does not necessarily endorse any of the facts or opinions advanced in articles which appear in *THE CHEMIST*.

SCHEDULED FOR EARLY PUBLICATION

Sixteen Years of Chemical Education in China, Dr. Peter P. T. Sah
Should Consulting Engineers Advertise? (Reprint), Richard L. Moore, F.A.I.C.

The Teacher, Dr. Hubert N. Alyea

Award of New Jersey AIC Chapter Honor Scroll to H. F. Wakefield, F.A.I.C.

Award to Western AIC Chapter Honor Scroll to George Parkhurst.

Presentation of Honorary AIC Membership to Dr. Roy C. Newton.

Agricultural Research and its Effect on Industrial Progress, Dr. Roy C. Newton, Hon. A.I.C.

AIC ANNUAL MEETING BOSTON, MASS., MAY 10-11, 1956

IN THIS ISSUE

Thirty-Third Annual Meeting Program	77
Editorial:	
Government Confiscation of Patent Property—Is it to the Public Interest? Benjamin Sweedler, F.A.I.C.	83
Presentation of Honorary AIC Membership to H. B. McClure ..	85
Captain of Chemistry, Lawrence H. Flett, F.A.I.C.	87
The Research Chemist in the Pharmaceutical and Medicinal Chemical Industries, Dr. Randolph T. Major, F.A.I.C.	89
Summer Jobs for High School Science Teachers	101
1956—The Centenary of Acheson, Raymond Szymanowitz, F.A.I.C.	103
Council	105
Will You Come	105
Opportunities	106
AIC Activities	107
For Your Library	108
Honor Scroll to H. F. Wakefield	108
Something New	110
George Parkhurst to be Honored	110
Dr. Frey to be Honored	111
Condensates	111

TO COME IN APRIL

Attuned to Spring, the April Chemist offers a splendid paper on "Agricultural Research and Its Effect on Industrial Progress." Dr. Roy C. Newton presented it at a meeting of the AIC Chicago Chapter in February, when he received Honorary AIC Membership. Dr. Gail Dack and H. S. Mitchell provide glimpses of Dr. Newton's own career. • Dr. Hubert N. Alyea of Princeton University, in his lively, original manner, will tell us about "The Teacher . . . busy as a bee . . . poor as a churchmouse . . . happy as a lark!"

TO SERVE YOU

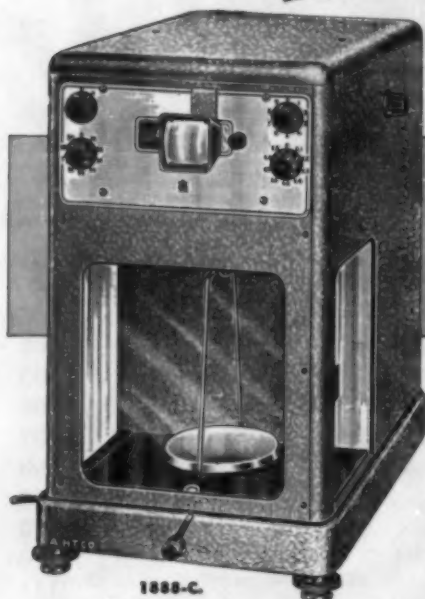
Baker & Adamson	Molnar Laboratories	97
Division	Oldbury Electro-Chemical Co.	84
Bios Laboratories	William E. Phillips, Inc.	88
100	Phoenix Chemical Laboratories	107
Croll-Reynolds	Robinette Research Laboratories	91
Fisher Scientific Co.	73	93
Food Research Laboratories	99	95
Emil Greiner Co.	95	76
Inside Back Cover	76	102
Harchem Division	112	U. S. Stoneware
O. Johnson & E. Scudder	86	Outside Back Cover
The Lento Press	111	

METTLER

**RAPID
WEIGHING
DIRECT READING**

BALANCES

**including
SEMIMICRO
and MICRO**



1888-C.

ANALYTICAL BALANCES, Mettler.

Single pan, direct reading, rapid weighing, accurate Balances with built-in Stainless steel weights operated by dials on front panel. Made in Switzerland and in satisfactory use throughout the world for the past nine years; now assembled—with the exception of the Micro model—and serviced in maker's U.S.A. branch.

Operate on the principle of weighing by substitution on a single pan with beam subject

- ◀ **RAPID, ACCURATE WEIGHING**
by dialing built-in weights
in less than 30 seconds
- ◀ **CONSTANT SENSITIVITY**

to constant load throughout the entire range, which method is recognized as highly accurate. Operation is simple and weighings can be completed in less than 30 seconds. Total weight is read directly from indicator on front panel. Sensitivity is constant throughout the weighing range.

The specially engineered packing includes all tools necessary for installation.

1867-J. Balance, Analytical, Mettler B-5, capacity 200 grams, accuracy ± 0.1 mg. With air damper and transformer for 110, 125, 145 or 220 volts, 50 or 60 cycles a.c., but without magnifier-light shield \$95.00

1888-C. Balance, Semimicro, Mettler B-6, similar to 1867-J but with capacity 100 grams, accuracy within optical range ± 0.02 mg, accuracy of entire set of weights ± 0.1 mg, and with magnifier-light shield \$95.00

1888-M. Balance, Microchemical, Mettler M-5, with recently improved damping device, capacity 20 grams, accuracy within optical range ± 0.002 mg, accuracy of entire set of weights ± 0.02 mg. With front radiation shield and magnifier-light shield \$1,380.00

Copy of Bulletin 127 sent upon request.



**More and More
Laboratories
RELY ON THOMAS**

ARTHUR H. THOMAS COMPANY

Laboratory Apparatus and Reagents

P. O. BOX 779

PHILADELPHIA 5, PA.

Telephone Service: Direct private wire New York to Philadelphia (no toll charge)
REctor 2-5035

THIRTY-THIRD ANNUAL MEETING PROGRAM

The American Institute of Chemists, Inc.

HOTEL STATLER • Boston, Massachusetts

Thursday and Friday, May 10-11, 1956

In accord with a custom established in recent years, the Thirty-Third Annual Meeting of the Institute will concern itself with an important aspect of the professional life of the chemist. This year the topic will be . . .

THE CHEMIST LOOKS AT COMMUNICATION

Communication among people is the basis of civilization. It is, of course, also the basis of any profession and, therefore, plays an important part in the development and success of the individual professional man.

From our own ranks, there will be presentations by chemists and chemical engineers whose careers have led them into . . .

CONSULTING
SALES
EDUCATION
MANAGEMENT
PUBLISHING
PUBLIC RELATIONS
POLITICS

To bring you the value of experience outside our profession, the program also includes speakers from the fields of . . .

PSYCHOLOGY
BUSINESS
SCIENCE WRITING
INTERSCIENCE ORGANIZATION

Your Committee believes that these men will stimulate two days of professional discussions which will make it well worth your while to come to . . .

BOSTON IN THE SPRING

And while we're on that subject, there's no nicer place to be in the spring. There you will be with a whole weekend ahead of you. This suggests that this will be an ideal meeting . . .

FOR THE LADIES

Besides a real treat in the tour of the Gardner Museum on Thursday afternoon, the historic spots and excellent shops of Boston will make the trip memorable. New England is really hospitable and our Ladies Committee will provide information on places to go and things to see in the famous "Hub of the Universe". At the Ladies Headquarters, coffee will be served both mornings. Ladies will be welcome at the luncheons and at the Gold Medal Award Banquet.

THE CHEMIST LOOKS AT COMMUNICATION PROGRAM

Wednesday, May 9th

(For National Council and Annual Meeting Committee)

- 5:30 P.M. The President's Reception to the Officers, National Councilors, Members of the Annual Meeting Committee, and their Wives. (Parlor C)
- 6:30 P.M. Dinner Meeting of the Board of Directors, Council and Meeting Committee (Hancock Room — \$5.00 will be collected at the table.)
- NOTE: See Ladies Program for wives of those attending this dinner.

Thursday, May 10th

- 9:00 A.M. Registration (Mezzanine)
- Pre-registration
- | | |
|-------------------|--------|
| AIC Members | \$3.00 |
| Non-Members | 5.00 |
| Students | 1.00 |
- Registration at Door
- | | |
|-------------------|--------|
| AIC Members | \$5.00 |
| Non-Members | 6.00 |
| Students | 1.00 |
- (There is no registration fee for wives of registrants.)
- 9:00 A.M. Coffee Hour (Bay State Room) No charge.
- 10:00 A.M. Annual AIC Business Meeting (Parlors B & C)

NOTICE

The Thirty-third Annual Business Meeting of the American Institute of Chemists will be held at the Hotel Statler, Boston, Massachusetts, at 10:00 A.M., on Thursday, May 10, 1956 for announcement of the election of officers and councilors, and for such other business as may be properly presented.

—LLOYD VAN DOREN, Secretary

AGENDA

Report of the President, Dr. R. P. Dinsmore
Report of the Chairman of the Board, Dr. D. B. Keyes
Report of the Treasurer, Dr. F. A. Hessel
Report of the Secretary, Dr. L. Van Doren
Reports of the Committees
Reports of the Chapters
Announcement of the election of officers and councilors
Old Business
New Business
Presentation of Honorary AIC Membership to Raymond Stevens

- 12:15 P.M. Keynote Luncheon (Bay State Room) Tickets \$4.00
- Presiding: Dr. John T. Blake, Simplex Wire and Cable Company
- Speaker: Dr. W. O. Baker, Vice President, Bell Laboratories, Inc.
- Subject: "Communications in a Technical World"

ANNUAL MEETING PROGRAM

- 2:00 P.M.** First Professional Session (Bay State Room)
Subject: "The What and Why of Communication"
Presiding: Dr. A. W. Fisher, Jr., Arthur D. Little, Inc.
- 2:10 P.M.** "The Psychology of Human Communication"
Dr. Robert Freed Bales, Laboratory of Social Relations,
Harvard University
- 2:40 P.M.** "The Importance of Communications to Industry"
C. B. Delano, Director of Personnel, Thomas J. Lipton, Inc.
- 3:10 P.M.** "The Why and How of Interpreting Science for the General Public"
Robert Cowen, Natural Science Editor, The Christian Science Monitor
- 3:40 P.M.** "Reaching the Future Scientist"
Dr. Donald B. Keyes, Arthur D. Little, Inc.
- 5:45 P.M.** Reception for the Gold Medalist (Parlors B & C)
(Courtesy of Arthur D. Little, Inc. — Admission by Banquet Ticket.)
- 7:00 P.M.** Gold Medal Banquet (Parlors A, B and C Tickets \$10.00)
(Dress optional)
Toastmaster: Dr. R. P. Dinsmore, President, The American Institute of Chemists
Speaker for the Medalist: Dr. Lawrence W. Bass, Vice President, Arthur D. Little, Inc.
Presentation of the Gold Medal: Lawrence H. Flett, Chairman, Jury of Medal Award, AIC.
Medal Acceptance Address: Raymond Stevens, President, Arthur D. Little, Inc. Subject: "The Liberating Arts"

Friday, May 11th

- 8:00 A.M.** Council Breakfast (Hancock Room)
(Price to be paid at the table.)
- 8:30 A.M.** Coffee Hour (Bay State Room) No charge.
- 9:00-2:00 P.M.** Registration (Mezzanine)
- 9:30 A.M.** Second Professional Sessions (Parlors B & C)
Subject: "Communication and the Scientific Professions"
Presiding: John H. Nair, Thomas J. Lipton, Inc.
- 9:40 A.M.** "Communication Within the Professional Society"
Dr. Walter J. Murphy, Director of Publications, American Chemical Society
- 10:10 A.M.** "Interdisciplinary Communication Among Scientists"
Dr. Dwight E. Gray, Office of Scientific Information, National Science Foundation

- 10:40 A.M. "International Scientific Communication"
Dr. W. A. Noyes, Head, Department of Chemistry, University of Rochester
- 11:10 A.M. "Communication Between Older and Younger Professionals"
Francis J. Curtis, Vice President, Monsanto Chemical Company
- 12:15 P.M. Institute Luncheon (Bay State Room) Tickets \$4.00
Presiding: Dr. D. B. Keyes, Past President and Chairman of the Board, AIC
Announcement of Honorary Membership Awards for the coming year by Chairman, Committee on Honorary Membership
President's Address: Dr. R. P. Dinsmore, President, AIC
- 2:15 P.M. Third Professional Session (Parlors B & C)
Subject: "Communication and the Individual Professional Man"
Presiding: Richard L. Moore, Foster D. Snell, Inc.
- 2:30 P.M. "Communication and Participation in the Community"
Dr. C. C. Price, Director, Department of Chemistry, University of Pennsylvania
- 3:00 P.M. "The Tools of Communication"
Dr. Johan Bjorksten, President, Bjorksten Research Laboratories
- 3:30 P.M. "Communications as a Factor in Success or Failure on the Job"
Dr. Sidney D. Kirkpatrick, Vice President, McGraw-Hill Publishing Company
- 5:00 P.M. Adjournment

LADIES' PROGRAM

Wednesday, May 9th

(For Wives of Officers, National Councilors, and Members of Meeting Committee)

- 5:30 P.M. President's Reception (Parlor C)
- 6:30 P.M. Dinner at one of Boston's famous restaurants. Dutch Treat (Approximate cost \$4.50 to \$5.00)
- 8:30 P.M. Boston Pops Concert (Courtesy of Godfrey L. Cabot, Inc.)

Thursday, May 10th

- 9:00 A.M. Coffee at Ladies Headquarters (No charge)
Information will be available on special events and places of interest in the Boston area.
- 12:15 P.M. Luncheon (Dutch Treat) at Salmagundi — Famous Back Bay Restaurant

ANNUAL MEETING PROGRAM

- 1:15 P.M.** Tour of The Gardner Museum (the fabulous Italian palace transplanted to Boston by the late leader of Boston Society, Mrs. Jack Gardner, to house her magnificent art collection), including a musical program from 2.45 to 3:15. (Tour and tea — \$1.50)
- 3:30 P.M.** Tea at the Simmons College Lounge (next door to Mrs. Gardner's) with an opportunity for any who are interested to visit the laboratories and other departments of this college which pioneered practical education for women.
- 5:45 P.M.** Reception and Gold Medal Banquet at the Statler.

Friday, May 11th

- 9:00 A.M.** Coffee at Ladies Headquarters (No charge)
Information will be available on special events and places of interest. It is thought that many will have more interest in shopping (anywhere from Newbury Street to Filene's Basement!)
- A tour of Concord and Lexington with luncheon at Hartwell Farm will be arranged from 10:00 A.M. to 2:00 P.M., if enough interest is shown at Registration time.

PLEASE NOTE

Reservations for hotel rooms should be sent directly to the Hotel Statler, Boston, Mass.

It is important that advance registration and payment be received by **May 1** so that adequate accommodations can be provided. Tickets will be held in your name at the Registration Desk. Please make all checks payable to The American Institute of Chemists. Your money will be refunded if cancellation is received by May 7.

In the event that requests for places at the Gold Medal Banquet should exceed the capacity of the hall, tickets will be assigned on a first-come first-served basis.

AIC members will receive reservation forms and hotel reservation cards, to be mailed on April 9th.

Annual Meeting Committees

Honorary Chairman

Dr. Warren K. Lewis, Professor Emeritus, Massachusetts Institute of Technology.

General Chairman

John T. Blake, Simplex Wire & Cable Co., 79 Sidney St., Cambridge, Mass.

Program

John H. Nair
Austin W. Fisher, Jr.

Arrangements

Richard S. Robinson
Arthur D. Little, Inc., 20 Memorial Drive, Cambridge 42, Mass.

Ladies

Mrs. Austin W. Fisher, Jr.
Mrs. Lawrence W. Bass

Treasurer

George B. Walker, Jr.

Registration

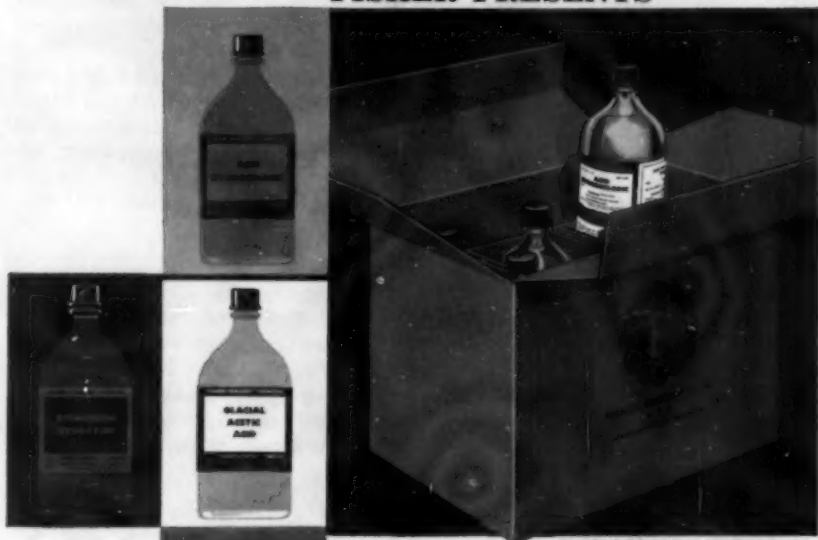
Robert A. Stauffer
John H. Durant
National Research Corporation, 70 Memorial Drive, Cambridge 42, Mass.

Publicity

George H. Taft
9 Monument Street, Concord, Mass.
Chairman — New England Chapter AIC
Walter R. Smith

NEW!

FISHER PRESENTS



Standard Packaging: Six 5-pt. bottles per ICC approved carton. Meets A.C.S. specifications.

"Dispos-It"™ no deposit

ACID CASES & BOTTLES

- No Deposit... No Paperwork... No Breakage Loss
- Compact... Lightweight... Easier to Handle
- Disposable When Empty... Stack Better When Full

Now — Fisher Reagents, as listed at the left, are available in six 5-pint disposable bottles per case. Gone are advance deposits, breakage losses, complicated paperwork for credits. Instead—Fisher Reagents, packaged in the new "Dispos-It," give a convenience, economy and safety factor never offered before. Added features include the "dripless sleeve" fitted on every bottle.


Next time, order reagents in the new Fisher "Dispos-It."

8-3-8

© Copyright 1956



"Dripless Sleeves" too! Unique polyethylene sleeve protects hands, keeps handling surface dry, prevents label defacing.

FISHER  SCIENTIFIC

Boston
Buffalo

Chicago
Cleveland

Detroit
New York

Philadelphia
Pittsburgh

St. Louis
Washington

Montreal
Toronto

America's Largest Manufacturer-Distributor of Laboratory Appliances and Reagent Chemicals

When contacting the advertiser, please mention THE CHEMIST.

EDITORIAL

Government Confiscation of Patent Property— Is It To the Public Interest?

Benjamin Sweedler, F.A.I.C.

Attorney at Law, 420 Lexington Ave., New York 17, N. Y.

A PATENT is a contract between the Government acting on behalf of the public and the inventor. The public learns the inventor's secret and obtains the free right to use this secret after the expiration of the patent; the inventor in return receives the privilege of preventing others from using his invention during the life of the patent. The inventor may sell his patent, thus transferring this privilege to the purchaser, may sell license rights under his privilege, or may decide to retain this privilege. It is these legal privileges which make the patent valuable.

Once the patent is given to the public, it loses its value. The commercialization of most inventions requires large expenditures of money. A most important incentive for such expenditures is the privilege afforded by patents of excluding others (for a limited period) from using the inventions. Without this privilege any market thus created can be appropriated freely. It is obvious that if an invention is not commercialized, it does not become available to the public and the public has lost something.

Thus, if the incentive to commercialize inventions is lost, the public suffers the loss.

Recently our Government has forced two large corporations to give all comers the free right to use the inventions of thousands of patents. Is this governmental confiscation of patent property to the public interest? If the Government can do this to the patents of large corporations through the medium of compelling a settlement of vexatious anti-trust litigation, can it not also confiscate the patent property of others? Where is the line to be drawn?

Is not this action directly inconsistent with our patent system which grants patents to inventors to provide an incentive for progress? If the right to exclude others can be confiscated by the Government, secrecy will be encouraged rather than the paramount objective of our patent system which is to give the public the benefit of the inventor's secrets.

Suppose you were one of the inventors or an owner of a patent whose patent was thus confiscated by governmental action, what would your

feeling be? Would you research just as diligently or invest in patents knowing that some day your patents on your future inventions, or those you had bought, might be confiscated by future administrations? The thought is certainly unpleasant.

Honored: Robert Lindley Murray, Hon. AIC, chairman of the Board of Hooker Electrochemical Co., Niagara Falls, N.Y., who will receive the Chemical Industry Medal of the American Section of the Society of Chemical Industry, "for conspicuous services to applied chemistry." Presentation will be made at a dinner meeting at the Waldorf-Astoria Hotel, New York, N.Y., April 27, 1956. Raymond Stevens, F.A.I.C., chairman of the American Section, will preside at the award meeting. Clifford F. Rassweiler, F.A.I.C., past chairman of the Section, will present the medal.

Engineering Industries Exposition: To be held May 17-19, 1956, at the Statler Hotel, New York, N. Y., in conjunction with the annual convention of the New York State Society of Professional Engineers, of 1941 Grand Central Terminal, New York 17, N. Y.

Appointed: Dr. Lloyd A. Hall, F.A.I.C., technical director of The Griffith Laboratories, Inc., Chicago 9, Ill., as a member of the Commission on Chicago Penal Institutions.

OLDBURY

1896

®

*Tomorrow
is here . . .*

MANY of the chemicals we make today were the "tomorrows" of times past. Many of the uses for these chemicals, too, were unthought of at the time these were first made available. Many of the *users*, too, are industries that were unknown and unthought of a few decades ago.

Tomorrow's "tomorrows" are already part of everything we do and make. And what we know . . . or are learning . . . we are ready to share among all users and potential users of Oldbury products.

OLDBURY

ELECTRO-CHEMICAL COMPANY

Executive Offices:

NIAGARA FALLS, NEW YORK

*Sales Office:*19 RECTOR STREET
NEW YORK 6, N. Y.*Plants:*NIAGARA FALLS, N. Y.
COLUMBUS, MISS.

Presentation of Honorary AIC Membership to H. B. McClure



*L. H. Flett, Former AIC President,
Dr. Harry B. McClure, Dr. Ray P. Dinsmore, AIC President,
and Dr. Sidney D. Kirkpatrick.*

HONORARY Membership in THE AMERICAN INSTITUTE OF CHEMISTS was presented to Harry B. McClure, F.A.I.C., president of Carbide and Carbon Chemicals Co. (a division of Union Carbide and Carbon Corp.), at a dinner meeting held by the New York AIC Chapter on January 12, 1956, at the Hotel Commodore, New York, N. Y.

Richard L. Moore, chairman of the Chapter, presided. Dr. Sidney D. Kirkpatrick, Hon. AIC, vice president of McGraw-Hill Publishing Co., Inc., was the gracious toastmaster. Lawrence H. Flett, former AIC president, spoke on the accomplishments of the honor recipient.

Dr. Ray P. Dinsmore, AIC presi-

dent, presented the certificate of Honorary Membership to Mr. McClure, who responded with an informal talk on "Benefitting from Research Results," in which he stressed the thought that research discoveries may not benefit mankind unless someone devotes time and energy to develop the discovery. Many of these discoveries may not realize their full promise unless research is carried out and the results are made available to the public.

Harry B. McClure was born in Philadelphia, Pa. He received the degree of B.S. in chemical engineering and the degree of M.S. in chemistry from the University of Pennsylvania, where he served as an

instructor in inorganic chemistry.

His first position with Union Carbide was as a research fellow on the Carbide and Carbon Chemicals Fellowship at the Mellon Institute of Industrial Research, in Pittsburgh. He served as a technical representative for Carbide and Carbon Chemicals Company in the Philadelphia area, and was later assigned to sales development work in New York. In 1936, he became manager of the Fine Chemicals Division. In 1944, he became a vice president of Carbide and Carbon Chemicals Company, and was appointed executive vice president in June 1953. In March, 1954, he was appointed president of the company.

For the past twenty years, Mr. McClure has been concerned mainly with the development of new chemicals and with the finding of new industrial uses for these materials. He is the author of many technical papers and articles. In 1948, he was awarded the honorary degree of Doctor of Science by Morris Harvey College, and in 1950 he received the first honor award of the Commercial Chemical Development Association for valuable service to the chemical industry.

He is a member of many technical and professional societies, including The American Chemical Society, the American Institute of Chemical Engineers, the Society of the Chemical Industry, the American Association

for the Advancement of Science, and the New York Academy of Science. His clubs include The Chemists' Club, the University Club of New York, the North Hempstead Country Club, and the Manhasset Bay Yacht Club.

The Carbide and Carbon Chemicals Company sponsored a reception to Mr. McClure, preceding the dinner.

The citation on the Honor Scroll reads:

To

Harry B. McClure

In recognition of his many contributions in advancing the stature of the chemist and the chemical profession by his enthusiastic leadership in research, development and executive administration in the field of synthetic organic chemicals.

Fellowships: Shell Companies Foundation, Inc., will underwrite summer seminars at Stanford and Cornell Universities for sixty science teachers annually. Requests for Fellowship applications should be sent to Cornell and Stanford.

RARE CHEMICALS

Tetranitromethane

Inorganic Nitrides

Organic Nitrates

O. JOHNSON & E. SCUDDER

92 ORCHARD STREET

Bloomfield, N. J.

Captain of Chemistry

Lawrence H. Flett, F.A.I.C.

Former President of The American Institute of Chemists, Inc.

(An excerpt from a talk given when Dr. McClure received Honorary AIC Membership, January 12th, in New York, N. Y.)

WHEN Dr. Kirkpatrick mentioned that he saw the Harry McClures at that meeting in Philadelphia in 1932, Harry McClure had already been well established as a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS.

Chemistry and particularly Organic chemistry had not progressed very far in this country prior to the First World War. We had been content to sit back and let the European nations take care of our chemical needs in an economy where cotton was "king". That war brought home to this country, in almost a catastrophic way, the importance of the industry which provides people with medicine, dyes, explosives, textiles, and many other daily needs. When this country found that a war could not be carried on without chemicals, university staffs were seriously depleted to provide men who got the chemical manufacture started.

By 1920, when the war was over, we were equipped to make necessities, but the chemical industry was still insignificant by today's standards. Not only that, but this infant industry was beset by a really frustrating array of problems, most serious of which was foreign competition. In the war time haste it had

been necessary to rush forward with production and there had been little opportunity to watch yields and improve equipment.

In the period which followed, there came a development which was to have a terrific impact on our American economy. It came with the emergence of the industrial chemist as an individual. Chemists in universities had always enjoyed a professional reputation. In industry this had not been so. The chemist was in many instances just a "guy named Joe."

It is not surprising that THE AMERICAN INSTITUTE OF CHEMISTS was organized during that period when the industrial chemist was striving to get into a professional role.

Along with the development of the chemist as an individual came widespread and organized methods of marketing. Technical service, which seeks to expand the use of chemicals by helping the user, had been introduced into the dye industry some thirty years earlier, but for the most part the service had been carried on through salesmen and not by chemists.

Harry McClure has been one of the leaders in this rapidly develop-

ing method of marketing which makes use of the professional chemist, but uses him in his true role as a scientist.

These new methods of marketing quickly became widespread and they have resulted in a development of the chemical industry which has brought incalculable benefits to this our people in their quest for "liberty and the pursuit of happiness."

Because Harry McClure was a leader in this, we like to think of him as a "Captain of Chemistry."

Reported: By *Chemical Week*, that the chemical industries, for the first time since World War II, are actively courting young women with college degrees for scientific and engineering jobs. Employers generally agree that women have outstanding qualities of patience, manipulative skill, and color perception, which qualify them for microchemistry, chromatography, and laboratory analysis, or in technical writing and editing, laboratory bench-work, product development, technical literature research and patent searching.

Honored: Loren B. Sjostrom, F.A.I.C., head of the Flavor Laboratory of Arthur D. Little, Inc., Cambridge, Mass., with a luncheon given by his associates, to celebrate his twentieth anniversary with the company, on January 13th. He is the author of numerous papers concerning flavor and odor.

William E. Phillips, Inc.

435 N. Michigan Ave., Chicago 11, Ill.

Midwest Agent

UNUSUAL—

but available here:

HYDROXYL AMINE NITRATE

(Approx. 15% aqueous soln)

SODIUM META PERIODATE

(Exceeds AOCs Spec. EA-6-51, for Glycerine determination)

SUCCINYL CHLORIDE

(B.P. = 97-100°C/30 mm)

TEREPHTHALYL CHLORIDE

(M.P. = 82-83°C)

"VitaStain"

(2,3,5-Triphenyltetrazolium Chloride)

"ZEREWITINOFF REAGENT"

(1.0 N. soln MeMgI in purified butyl ether)

Produced by

ADAPALOE

To Air Force Reserve Officers:

An opportunity for those in the New York metropolitan area to receive specialized training in Air Force research and development activities is available. Meetings are held at 7:00 p.m. on the first and third Wednesdays of each month at the 2610th Air Reserve Center, 346 Broadway, New York, N. Y. Training is conducted by members of the Pratt Institute staff, from industry, and from the Air Force. Col. A. S. Randak, Squadron Commander, extends a cordial invitation to reserve officers who have training in aeronautics, physics, mathematics, metallurgy, electronics, chemistry, electrical or mechanical engineering. For information, call Lt. Gardner, REctor 2-8000, Ext. 561.

The Research Chemist in the Pharmaceutical and Medicinal Chemical Industries

Dr. Randolph T. Major, F.A.I.C.

Scientific Vice President, Merck & Co., Inc., Rahway, N. J.

(Originally presented before the Pennsylvania AIC Chapter, Feb. 5, 1953.
Revised by the author as of Jan. 20, 1956.)

SOME years ago a happy, attractive, socially-active woman in her thirties began to suffer from pain and stiffness in her back. In spite of all types of treatment, the condition became worse. She was suffering from rheumatoid spondylitis, a chronic disease characterized by inflammatory changes in the spine. Seven years later she had become an unhappy woman suffering excruciating pains. Her spine had become so stiff she could scarcely bend at all.

Then she was taken to a hospital and 200 mg. of cortisone were administered to her intramuscularly and 100 mg. per day thereafter. Rapid improvement took place and after two weeks she was discharged from the hospital, almost free from pain. One month from the date of the first injection of cortisone, her pain was gone; movement in the back was much freer; and she felt fine. The dosage of cortisone was reduced eventually to 100 mg. every three or four days. When she was examined by her physician a year ago her back was free from pain and spinal function was almost completely restored. (Reported in "Cortisone—A Handbook of Therapy", Merck & Co., Inc., 1952.)

This woman's case is typical of the benefits accruing to mankind from the new products coming out of the research laboratories of the pharmaceutical and medicinal chemical industries. These industries have as their prime purpose aid for the patient. Mr. George W. Merck has stated the attitude of these industries as follows:

"We try to remember that medicine is for the patient. We try never to forget that medicine is for the people. It is not for the profits. The profits follow, and if we remember that, they have never failed to appear. The better we have remembered it, the larger they have been." (Address before the Medical College of Virginia, Richmond, December, 1950.)

These industries ever try to remember their partnership with others concerned with the healing arts and sciences and their obligation as stated in the Hippocratic Oath: "I will use my power to help the sick to the best of my ability and judgment; I will abstain from harming or wronging any man by it."

Men in all ages have found new medicinal products, but those still used in modern medicine were largely found in the past century and a half. Prior to this the value of cinchona bark in malaria, opium for pain and

ergot in childbirth were known. But it was not until the first-half of the Nineteenth Century that the anesthetic properties of ether and chloroform were generally recognized and the germicidal properties of phenol became known. The latter half of the Nineteenth Century gave us the salicylates as antipyretics, and acetanilid and antipyrine as antipyretics and analgesics. The first thirty years of the Twentieth Century gave us such useful drugs as epinephrene, Adrenalin, procain, arsphenamine, the barbiturates, barbital, quinacrine, and Atabrine. Since 1930, have come many new valuable products: the sulfonamides, synthetic vitamins, antibiotics, sex and adrenal hormones, and synthetic analgesics such as demerol and methadone.

The pharmaceutical industry has contributed much to the development of these and other new products, particularly since the latter half of the Nineteenth Century when the industry began to establish its own research laboratories. New pharmaceutical products first made in industrial research laboratories include such important drugs as Aspirin, Antipyrine, Phenobarbital, Adrenalin, many Sulfonamides, Procaine, Atabrine, Methadone, Paludrine, Vitamin B-12, Aureomycin and Terramycin.

The first industrial pharmaceutical research laboratories were started as an outgrowth of the research lab-

oratories of the German dyestuff industry in the latter 1800's. The first industrial laboratory devoted exclusively to pharmaceutical research in this country was probably established by Parke, Davis in 1902, and the industry's growth has been rapid in the past thirty years. The National Research Council has pointed out that the number of industrial research laboratories in this country increased tenfold between the years 1920 and 1950, and probably the growth of research in the pharmaceutical industry has been at least as rapid as that of the industry as a whole.

Although all modern drugs are not produced or found first in the research laboratories of industry, it is seldom today that a new drug is produced that has not been studied in some way in an industrial pharmaceutical research laboratory. The process must be checked in the research and development laboratory. It must be improved. The properties of the product must be studied in order to develop adequate and practical quality standards for the product. Ordinarily the pharmacologic and pathologic effects of the drugs must be determined, as well as its acute and chronic toxicity; and often further clinical studies are required in order to evaluate the product. In this country, this information is not only necessary before a pharmaceutical firm itself can feel that it is safe and proper to market the new drug,

but also before industry can legitimately market it for medicinal use under current Food and Drug Laws.

Punch, as quoted by William Bell (News Edition, ACS, 18, 185, 1940) had this to say about research in industry:

"Research", says Punch, "has many advantages and one disadvantage. Among its main advantages are: (1) It does no harm; (2) It reduces unemployment; (3) Visitors and shareholders are impressed by the sight of so much science and the smell of so much sulfuretted hydrogen; (4) One of these days someone may find something that will make all the difference in your business. This is at least statistically possible; (5) Scientists are nice quiet lads without vice. The only real disadvantage," Punch goes on, "is: (1) Cash." Punch cannot visualize any business man comparing these advantages with this slight impediment and remaining long in doubt as to what he should do. "Money isn't everything."

The heads of modern industry realize fully the necessity of research. At the dedication of his company's laboratories, Mr. L. A. Van Bomel, president of National Dairy Products Corp., stated,

"Research is no incident of business. It is a basic need of management. No business can long survive in today's fast changing world if it fails to keep abreast with scientific developments."

Many of the products of the pharmaceutical industry have a high rate of obsolescence. The "chlorophyll" deodorant of the early Greeks, as recorded by Pliny, is described as follows:

"If the fish called the sea star is smeared with fox's blood and then nailed to the upper lintel of the door,

**ROBINETTE RESEARCH
LABORATORIES, INC.**

*Industrial Research -> Consultation
Technical and Economic Surveys
Product Development
Chemical Market Research*

**16 East Lancaster Avenue
Ardmore, Pa. Tel. Midway 2-6457**

or to the door itself, with a copper nail, no noxious spell will be able to obtain admittance, or at all events, be productive of ill effects." (From *Four Thousand Years of Pharmacy*, by LaWall, J. B. Lippincott Co., 1927, p. 63.)

The 1926 issue of the *U. S. Pharmacopoeia* listed the following items which are no longer recognized by similar listing in the 1950 issue:

Arsphenamine, Neoarsphenamine, tannic acid, santonin, aconite and aconitine, strychnine, strophanthin, sodium cacodylate, and many others. There are still products listed in the *Pharmacopoeia* which are used much less than formerly. Such a product is quinine, once the specific of choice for malaria and now largely superseded for this purpose by synthetics.

Fortunately for the pharmaceutical industry, new products such as the vitamins, antibiotics, hormones, sulfonamides and other synthetic drugs have more than taken the place of the drugs which were dropped from the current issue of the *Pharmacopoeia*. The financial reports of many pharmaceutical houses indicate that more than half of the total sales for a given year are in products which were not in the lines of these

companies ten years earlier.

Competition between the various companies in such a rapidly growing industry has become keen. All of this benefits the consumer but it is sometimes difficult for those in the industry to continually maintain the fast pace which is now accepted as normal by this industry. We see such headings on articles in financial journals as "Overdose of Antibiotics" (*Business Week*, McGraw Hill, Oct. 18, 1952, p. 138) and "Wonder Drugs, Slashed Prices, Growing Competition Squeezing Antibiotics Profit Margins" (*Barrons*, June 30, 1952, p. 9). There has been over-production of penicillin and, to a less extent, of streptomycin. As a consequence, prices have dropped to low levels. There are price cuts also on other pharmaceutical products. Antibiotics, according to recent reports, accounted for 43 per cent of the volume of pharmaceutical manufacturers.

Antibiotics and other new drugs have been responsible for saving the lives of countless thousands of people. Scientists in many different laboratories, government, research institutes, university, hospital, and industry, have made important contributions toward the introduction into medicine of the antibiotics. But everyone realizes the enormous part played by industrial research in this development.

Some may ask, why spend so much time and effort in this field? On the

other hand, what means more to people than their life and health? The dollar value of drugs and medicines in the United States increased from two-hundred million dollars in 1931 to one-billion 200-million dollars in 1951. Many diseases which were debilitating and fatal in 1931 are no longer dangerous. One should not conclude that all of the improvement in man's ability to control disease today should be attributed to the new drugs and medicines available to him, but these have undoubtedly contributed to it enormously.

Reports on the average length of life today, as compared with the shorter life expectancy of former years, is very informative. The Brookings Institution has published a report on the status of public health in the U.S., which is the result of a three-year study of a dozen research experts and to which more than 700 private and public agencies have contributed. Its over-all conclusion is that the average mortality rate has been cut from 17.2 per 1000 in 1900 to 9.6 per 1000 in 1950. This spectacular improvement is due to advances in medical sciences, increase in medical facilities and control of communicable diseases. (*N. Y. Times*, Aug. 10, 1952). The much longer average length of life in the United States, compared with that in some other countries is also illuminating.

Dr. Louis Dublin, Metropolitan

Life Insurance Company, stated (*Journal of Commerce*, Dec. 24, 1952), "The health of the American people in 1952 has been at a peak and the prospect is excellent for 1953." The brightest spot in the record, according to Dr. Dublin, was the continued rapid fall in the mortality from tuberculosis. He noted that the death rate from the disease in 1952 was less than 18 per 100,000, and that "it is difficult to realize that only as recently as 1946 it was double this rate, and only 15 years ago was nearly 3 times as high." Streptomycin and other new anti-tuberculosis agents introduced in the past few years have undoubtedly contributed significantly to this wholesale drop in the death rate from tuberculosis.

In addition to new products, the research laboratories of the pharmaceutical and medicinal chemical industry are interested in establishing new uses for known products. Sulfanilamide was first synthesized in 1840, but its use in medicine was not found until 1935. Isonicotinyl hydrazide was first synthesized chemically in 1912, but its use in the treatment of tuberculosis was not found until last year when this was established as a result of a cooperative research program between an industrial pharmaceutical research laboratory and the medical profession. Cortisone had been isolated and its structure established over ten years before sufficient was made by a synthetic procedure

the Record
**of Distinguished
 Service by
 Foster D. Snell, Inc.**

RESEARCH LABORATORIES
 CHEMISTS • ENGINEERS
 29 W. 15 St. New York 11, N. Y.
 WA 4-8800

**is the reason why
 so many
 Come to Snell
 for problem solving.**

Whether your Research Project be
 little or large, Snell invites you to
 inquire without cost or obligation

in an industrial pharmaceutical research laboratory to permit its evaluation in rheumatoid arthritis, and this revolutionized the treatment of this disease.

The research laboratories of the pharmaceutical and medicinal chemical industry are much concerned with finding better and cheaper processes for producing its products. This has made possible drastic reductions in the price of modern drugs.

Chemists play an extremely important part in the team of scientific investigators working on the problem of curing disease and alleviating pain. However, some of our fellow citizens don't appreciate always the efforts that chemists exert on their behalf. In the Nov. 10, 1952 issue of the

Atlanta Journal the following letter was published:

The Atlanta Water Is Too Tasty Already

I am against putting fluorine in Atlanta's drinking water. Let's not make things any worse than they are now. I can remember when Zode Smith was water commissioner and Atlanta's water was famous for its purity. A glass of water was affectionately known as a 'Zode Smith Cocktail.' Now, it is so full of chemicals and drugs that people are beginning to take it in capsules. It tastes and smells, and, if anything must be added to it, it should be chlorophyll. Fluorine is the ONE thing not in Atlanta water. Before they put it in they will have to make room for it. Fluorine gives you strong teeth and that will help you to chew the water. It hasn't any taste so you will notice it right away. The trick is to get just enough fluorine—as with gin. Too much fluorine and your teeth will go into business for themselves. Atlanta water is making a name for itself but you are not allowed to say it in polite company. And, speaking of selling beer in the grocery stores—shucks, mister, in Atlanta you can't drink anything stronger than water.

—W. W. Herbert

I will illustrate some of the contributions that chemists have made in the pharmaceutical and medicinal chemical research laboratories by some examples taken from our own laboratory.

Some years ago, Dr. Karl Folkers and associates indicated that they would like to apply some modern techniques to the isolation of the active principles in liver responsible for the effectiveness of liver and liver extracts in the treatment of pernicious anemia. This was during World War

II, when really active work on this problem did not seem justified. However, a little effort was expended on the problem.

Pernicious anemia had been first recognized as a distinct disease by Thomas Addison about one-hundred years previously. "Pernicious" referred to the usual fatal outcome of the disease. However, in 1926 Minot and Murphy at Harvard found that administration of sufficient liver or certain liver extracts would maintain normal hemopoiesis in pernicious anemia. After this discovery, the question arose as to what was the active principle or principles in liver responsible for its action. Before study began in our laboratories, active extracts had been obtained but the pure principle had not been found.

One of the greatest obstacles to finding the antipernicious anemia factor was that this anemia occurs only in man and cannot be reproduced in animals. When Dr. Folkers and his chemists began work on the isolation of this active principle in liver, they were fortunately able to get the cooperation of the late Dr. Randolph West of Columbia's Medical School who had a good deal of experience in the treatment of pernicious anemia with liver and its concentrates. Progress was slow until 1947, when Dr. Mary Shorb, University of Maryland, found that liver extracts stimulated the growth of certain bacteria. She had the impression that the more

active a liver extract was in treating pernicious anemia, the more effective it was in stimulating the growth of her bacteria. When highly potent liver concentrates obtained in the Merck laboratories were tested on her bacteria, they were remarkably effective in stimulating bacterial growth. By utilizing Dr. Shorb's test method and by checking the effect of the liver concentrates on patients, a red, crystalline material was finally isolated in our laboratories from liver. This material was amazingly active. Formerly a half to a pound of liver must be taken per day by a person suffering from pernicious anemia to control his symptoms, but the injection of only one-microgram per day of these red crystals was sufficient to control the disease. This powerful substance was named vitamin B-12.

This new compound was chemically very complicated and its complete structure has been determined only very recently. Synthesis has not proved possible, but fortunately it has been found that the vitamin may be produced by fermentation. It is now produced almost entirely in this way rather than by extraction from liver. The pure vitamin is thus available for the treatment of pernicious anemia. The matter of purity is important, as liver extracts when injected sometimes produce unpleasant allergic reactions not produced by vitamin B-12. The fact that this same vitamin was isolated in the laboratory

R. STECKLER LABORATORIES

8200 Harvard Ave. Cleveland 5, Ohio
BRoadway 1-4828

*Research • Product Development
Consultation • Market Research
Product & Process Evaluation*

SYNTHETIC RESINS, POLYMERS, COATINGS
Fully Equipped Laboratory

of the English pharmaceutical manufacturing company, Glaxo, independently, and only shortly after it was done at Merck, is an example of the international character of science.

The story of vitamin B-12 does not end here. It had been known, previous to the isolation of this vitamin, that an unknown substance, called the animal protein factor, was present in certain materials, such as fish meal, cow manure, and liver, and that it was required for the optimum growth of chicks and hatchability of hen's eggs. Soon after the isolation of vitamin B-12, Dr. Walther Ott and collaborators in Merck Institute laboratories found that crystalline vitamin B-12 could replace these crude sources of the animal protein factor in promoting chick growth. Thus vitamin B-12 is responsible at least to a large extent, for the growth-promoting activity of such feed supplements. Since then many tons of concentrates of fermentation mash containing vitamin B-12 have been used in preparing chick feeds, making it unnecessary to use as much of the expensive meat

proteins in these diets. It seems that the principal difference between meat protein sources and the better plant protein sources is that the latter contain practically no B-12 or any related vitamin.

Optimal growth of young pigs fed on an exclusively plant diet has been found to be at least partially dependent upon the addition of vitamin B-12 to the feed. Some of the antibiotics have an added stimulating effect on the rate of growth of chicks and young pigs. A completely satisfactory explanation of this is not yet known.

A Cleveland physician, Dr. Norman Wetzel, showed that the rate of growth of certain undernourished grammar school children could be increased by feeding minute amounts of vitamin B-12. He reported results that were sometimes dramatic. Recently he has confirmed these results, which suggest that the diets of many undernourished children are deficient in this food factor.

Our work on cortisone and related compounds started in the fall of 1941, as a result of a rumor that reached our U.S. military departments, and which now appears to have been false. The rumor was that the pilots of the German Luftwaffe were being injected with extracts of the cortex of adrenal glands to permit them to fly at ease at altitudes of 40,000 feet. The National Research Council was asked to obtain quantities of adrenal cortical extract and to study its effect

on flyers at high altitudes. These substances may be obtained from the adrenal glands of animals, but a survey made by the National Research Council showed that the total quantity of adrenal glands obtainable from all the slaughtered animals in this country was too small to provide a quantity of adrenal hormones for the purpose.

However, the National Research Council also learned that Dr. E. C. Kendall (Mayo Foundation, Rochester, Minn.) had been trying to synthesize one of these hormones, Kendall's Compound A, which he had previously isolated from the adrenal glands of cattle. He was trying to make it from desoxycholic acid, which occurs in cattle and sheep bile. The newly-formed Medical Research Committee of the Office of Scientific Research and Development began to take a great deal of interest in the synthesis of adrenal hormones. Several industrial and academic research laboratories, including Dr. Kendall's and our own, were asked to cooperate in the effort. However, as the war progressed, it seemed less likely that a practical synthesis of the important adrenal hormones would be possible before the end of the war, and the government dropped most of its interest in the problem. Our laboratories and Dr. Kendall continued the work in close cooperation. Two Swiss laboratories were also engaged in the same study. Both Dr. Kendall and the Swiss investigators succeeded

in synthesizing Kendall's Compound A. Unfortunately, when it was tested in medical clinics against Addison's disease (caused by deficiency of normal adrenal secretion in the body) it proved ineffective. This finding destroyed any hope that Compound A might be an aid to aviators.

In the meantime, a young chemist, Lewis Sarett, had come to our laboratories in 1942. Three years later he had synthesized a few milligrams of Kendall's Compound E, or cortisone as it is known today, a product related closely to Compound A. Medical men advised us to produce enough Compound E for clinical study. The disappointment suffered in the case of Compound A and the large amount of money spent on the research made us hesitant about embarking on the preparation of considerable quantities of synthetic Compound E. However, it was finally decided to do it. Fortunately, during the ensuing two and a half years, the yields were vastly improved, largely as a result of the work of Dr. Kendall. Therefore, in late 1948, a great deal more was obtained than had been expected. This was fortunate since the small amounts first anticipated would not have been enough to establish the interesting medical properties that Compound E was later found to have.

One of Dr. Kendall's colleagues at the Mayo Clinic was Dr. Philip Hench, head of the department of

MOLNAR LABORATORIES

Organic Process Development,
Control Laboratory and Pilot
Plant Studies

Toxicology • Bacteriology • Biochemistry

Your Inquiries Invited

211 E. 19th Street, New York 3, N. Y.

Telephone: GRamercy 5-1030

rheumatic diseases. Dr. Hench had long suspected that some of the crippling rheumatic disease might be due to a derangement of hormones in the body. He requested some of the precious Compound E from our laboratories for studies in cases of rheumatoid arthritis. This was done in September, 1948. The results that he obtained when he injected a small amount of this material in some patients, crippled with rheumatoid arthritis, undoubtedly will not be forgotten as long as there are historians of medical progress. He described his first clinical experiments with Compound E as follows:

"Just before our (first) patient received her first injection of Compound E on September 21, 1948, she could hardly get out of bed. Walking was so painful that she never left her hospital room. But within four days most of her stiffness was gone and within a week tenderness, pain on motion, and even swellings were disappearing.

"Since then Dr. Kendall, Slocumb, Polley and I have given Compound E (later named cortisone) to about 20 more patients with severe rheumatoid arthritis—the patients improved rapidly. Patients who previously walked, dressed or fed themselves with dif-

ficulty were soon able to do these things much better. Their appetites and weights increased — a decided sense of well-being sometimes developed."

—"The Use of Cortisone and ACTH in Rheumatic and Other Diseases" by Philip S. Hench. Advance copy of address at banquet opening the 1949 campaign of the Arthritis & Rheumatism Foundation, Boston, Nov. 21, 1949.

Since the results on rheumatoid arthritis at the Mayo Clinic were obtained, they have been repeated in many clinics scattered all over the world. Drs. Kendall and Hench shared the Nobel Prize in medicine with the Swiss chemist, Tadeus Reichstein, for their outstanding work on the adrenal hormones. In 1950, also Dr. Lewis Sarett received the Baekeland Award for his synthesis of Compound E.

In addition to helping to develop new products, the chemists in the pharmaceutical and medicinal chemical industry play an extremely important part in the work on new and improved processes.

The chemists in this industry have also contributed some extremely important fundamental research as illustrated by two reports from the New York Academy of Sciences, Nov. 1952, "Streptomycin, Its Mode of Action" by W. W. Umbreit and "Chemical Structure of Terramycin in Relation to Mode of Action" by Peter P. Regna.

The monetary rewards received by those engaged as research chemists in the pharmaceutical and medicinal

chemical industries are comparable with those received by chemists working in other industries. However, the other rewards and satisfactions are manifold. The greatest of these is in observing and in learning of the benefits and effects of the products developed in the research laboratories on sick and suffering people . . . These are the real rewards and satisfactions that come to those who are connected with the healing arts and sciences. They are very great.

It might be well to consider the implications of science for society. Scientific work per se leads only to a better understanding of nature. However, the observations and experiments carried out by scientists, in the course of attempting to interpret nature, often lead to technological changes of vast importance, as witness the new antibiotics and the atomic bomb. Scientists should bear in mind that the support of scientific work by society must depend upon the return received by society from the work of scientists. This need not be a return of a short term character and may consist only of a contribution to the better understanding of nature by people. However, the work of scientists ordinarily is not supported by scientists, but by the lay public. Accordingly, scientists should welcome every legitimate effort made to interpret their work honestly to the public. There is a great need for this and the public hungers for a better

understanding of the meaning of science and of the significance of the work of scientists. Scientists should be willing to help those who are engaged in interpreting their field to the public.

Let us turn our attention briefly to the future of chemists in the chemical and pharmaceutical industries. The need of medicines for the sick and suffering public are still very great. In 1945 the Medical Advisory Committee to the Office of the Scientific Research & Development reported to Dr. Vannevar Bush as follows:

"As President Roosevelt observed, the annual deaths from one or two diseases are far in excess of the total American lives lost in battle during this war. A large fraction of these deaths in our civilian population cut short the useful lives of our citizens. This is our present position despite the fact that in the last three decades notable progress has been made in civilian medicine. The reduction in death rate from diseases of childhood has shifted the emphasis to the middle and old age groups, particularly to the malignant diseases and the degenerative processes prominent in later life. Cardiovascular disease, including chronic disease of the kidneys, arteriosclerosis, and cerebral hemorrhage, now account for 45 per cent of the deaths in the United States. Second are the infectious diseases, and third is cancer. Added to these are many maladies (for example, the common cold, arthritis, asthma and hay fever, peptic ulcer) which, though infrequently fatal, cause incalculable disability.

"Another aspect of the changing emphasis is the increase of mental diseases. Approximately 7 million persons in the United States are mentally ill; more than one-third of the hospital beds are occupied by such persons, at a cost of \$175 million a year.



FOOD RESEARCH
LABORATORIES, INC.
Founded 1923

RESEARCH
ANALYSES • CONSULTATION

Biological, Nutritional, Toxicological Studies
for the Food, Drug and Allied Industries

48-14 33rd STREET
LONG ISLAND CITY 1, N. Y.

Bulletin "What's New in Food and Drug Research"
available on letterhead request.

Each year 125,000 new mental cases are hospitalized.

"Notwithstanding great progress in prolonging the span of life and in relief of suffering, much illness remains for which adequate means of prevention and cure are not yet known. While additional physicians, hospitals, and health programs are needed, their full usefulness cannot be attained unless we enlarge our knowledge of the human organism and the nature of disease. Any extension of medical facilities must be accompanied by an expanded program of medical training and research."

—*The Endless Frontier*, by V. Bush,
p. 8. July 1945.

Some of these conditions, such as asthma and arthritis, have been considerably benefitted by drugs developed since 1945. But it is still true that malignant and degenerative diseases prominent in the later years of life, such as the cardiovascular diseases, cancer, and mental diseases, still claim the lives of many people each year. Some method must be found for overcoming these scourges. As long as this is the case, there will be need for more research chemists in the pharmaceutical and medicinal chemical industry.

With regard to the environment

necessary to the greatest productiveness of chemists in this field, the late Dr. Karl Compton, Massachusetts Institute of Technology, has stated:

"What really leads us forward is a few scientific discoveries and their application. Therefore, it becomes of the utmost importance to do everything in our power to insure favorable environment for scientific progress, and . . . three aspects of this environment are of great significance: Stimulus, opportunity and climate.

"My favorite definition of a stimulus is that it is a mild irritant. The irritant may take any form—it may be dissatisfaction of the status quo, leading to desire for improvement. It may be competition, stimulating effort to excel. It may be danger, arousing the instinct to survive.

"I believe that the urge for progress is a basic human quality which can be anesthetized or suppressed or, conversely, can be cultivated and encouraged . . ."

I think there is no question that the chemists in the pharmaceutical industry, in cooperation with their brother scientists in medicine, bacteriology, physiology, physics, etc., are in a climate which is conducive to advances in the field of pharmacy and medicine. Their associates in the company and their fellow scientists also act as a stimulant and give them an opportunity to advance in their chosen field. The chemist can contribute much in such an atmosphere and will continue to add much to the alleviation of pain and sickness. The need is great and the opportunities for chemists in the pharmaceutical and medicinal chemical industry are only bound by their own imagination and ability.

NOW OVER 5100 BIOS CHEMICALS

- 2,6-DICHLOROPYRIDINE
- DIDYMIUM CHLORIDE
- DIDYMIUM NITRATE
- DIDYMIUM SULFATE
- DIETHYLAMINE SALICYLATE
- DIETHYLAMINOACETAMIDE
- γ -DIETHYLAMINOPROPANOL
- DIETHYLENEGLYCOL DINITRATE
- DIETHYL MERCURY
- DIETHYL SULFONE
- DIETHYL ZINC
- 2,5-DIFLUORONITROBENZENE
- DIGITOXOSE, *d*(ψ)
- DIGLYCYLGLYCINE
- DIGOXIN

Ask for our new
complete catalogue.

BIOS

Laboratories, Inc.

17 West 60th St. New York 23, N. Y.
PLaza 7-8171

Announced: The appointment of Biochemical Procedures, 8350 Wilshire Blvd., Beverly Hills, Calif., as the West Coast Laboratory of Foster D. Snell, Inc., 29 W. 15th St., New York 11, N.Y.

New Building: For the executive offices of Roger Williams Technical & Economic Services, Inc., is planned to be built near Princeton, N. J. The New York office at 148 East 38th St., will be continued for the convenience of clients.

New Offices: For Colgate-Palmolive Company in the Colgate-Palmolive Building, 300 Park Ave., New York 22, N.Y.

Summer Jobs for High School Science Teachers

DR. William Jansen, superintendent of Schools in New York City recently announced that "twenty industrial firms and scientific laboratories in this area are offering fifty summer jobs to New York city high school science and mathematics teachers." The offer of positions was made in response to letters sent by Dr. Jansen to leaders of industry. The letters were sent at the suggestion of an Industry-Education Committee organized by Samuel Schenberg, F.A.I.C., supervisor of science of the High School Division.

Dr. Jansen said, "Industrial leaders and educators agree that both industry and teachers will benefit as a result of this project. Teachers will learn, at first hand, the industrial applications of the scientific theories taught in the classroom and augment their salaries at the same time. Industry feels that these teachers will go back to their classrooms enriched by their experience so that they will be able to interest more students to seek careers as scientists and engineers."

The Industry-Education Committee consisted of Carlton M. Barlow, Coordinator of College Recruiting, Union Carbide and Carbon Corporation; William T. Cavanaugh, executive secretary, Engineering Manpower Commission; Robert Clark, Sperry Gyroscope Co.; Richard

Clarke, Sylvania Electric Products; R. A. Deller, Bell Telephone Laboratories; Fred B. Foulk, National Association of Manufacturers; O. B. J. Fraser, F.A.I.C., International Nickel Co. and New York Section, American Chemical Society, Guidance Committee; Roy Gibb, personnel director, Consolidated Edison Co.; Maxwell E. Hannum, educational director, National Association of Manufacturers; William H. Harrington, Chas. Pfizer & Co.; Karl M. Herstein, F.A.I.C., president, Herstein Laboratories; Father George J. Hilsdorf, F.A.I.C., New York Section ACS Guidance Committee, St. Peter's College; Dr. D. B. Keyes, F.A.I.C., Harvey Russell, American Cyanamid Co.; Samuel Schenberg, F.A.I.C.; Fred Schoenberg, assistant superintendent, Board of Education; William Scott, Interchemical Corp.; James H. Stack, ACS News Service; Franklin E. Vilas, Consolidated Edison Co., and R. V. Worthington, Socony Mobil Laboratories.

The Committee met on February sixth to consider the offers of employment and directed its Steering Committee, consisting of Fred B. Foulk, James H. Stack, R. V. Worthington, and Samuel Schenberg, F.A.I.C., its chairman, to draw up suitable applications for distribution to science and mathematics teachers

interested in summer employment in industry.

The industrial firms and scientific laboratories which will participate in this summer job program are: Air Reduction Co., Inc., The Babcock & Wilcox Co., Bell Telephone Laboratories, Inc., Colgate-Palmolive Co., Columbian Carbon Co., Ebasco Co., Esso Standard Oil Co., Food Machinery & Chemical Corp., Foster D. Snell, Inc., General Dynamics Corp., Haskins Laboratories, Hogan Laboratories, Inc., Interchemical Corp., Walter Kidde Nuclear Labs., Inc., Kollsman Instrument Corp., National Lead Co., Chas. Pfizer & Co., Inc., Shell Oil Co., Socony Mobil Oil Co., Inc., and Western Electric Co. In addition, seventeen firms stated that they were still considering the employment of teachers during the coming summer.

Dr. Jansen said this movement for summer employment of high school science and mathematics teachers is gaining momentum all over the United States, and he was sure that the success achieved by the Industry-Education Committee in New York city would help similar projects to get under way.

The New York AIC Chapter met jointly with the American Chemical Society, on February 10th, to hear Dr. Hubert Alyea of Princeton University and Samuel Schenberg, F.A.I.C., discuss the "High School Science Teacher Scarcity" and to

direct questions to a panel of (1) industrial employers who have hired science teachers for summer laboratory positions: Karl M. Herstein, F.A.I.C., Dr. C. L. Wrenshall, (Pfizer & Co.) and R. V. Worthington, and (2) high school science teachers who were employed last summer in industrial positions: Sidney P. Harris, Herbert Tucker, and William Clarvit. Both employers and employees agreed that summer laboratory positions for high school teachers not only benefitted the companies but gave new interest and fresh enthusiasm to the teachers.

Dr. Alyea believes that teachers should be employed as year-round consultants to industry, in addition to summer employment. As a debit to industry, he listed the teacher's salary and the waste of plant time training him. But as credit, another pair of hands; unorthodox ideas (some might work); better training of future employees in high schools, and better recruitment from high schools.

**TRUESDAIL
LABORATORIES, INC.**

Write for Brochure and
Bi-monthly Publication
"CHEMISTRY IN ACTION"
4101 N. Figueroa St.
Los Angeles 65, Calif.
CApitol 5-4148

**CHEMISTS • ENGINEERS
BACTERIOLOGISTS**

- Applied Research & Development
- Consultation
- Analyses
- Environmental & Mechanical Testing

1956—The Centenary of Acheson

Raymond Szymanowitz, F.A.I.C.

Executive Vice President, Acheson Industries, Inc.,

1019 Broad St., Newark 2, N. J.

EDWARD GOODRICH ACHE-
SON, scientist, inventor, and industrialist, was born in Washington, Pennsylvania, one-hundred years ago on March 9, 1856.

When he was five years of age, his family moved to the small village of Monticello, situated on the Allegheny River, fifty miles north of Pittsburgh, where his father had obtained a position as manager of a blast furnace.

Acheson, like other youths of his generation, spent his time fishing, boating, hunting, and attending the district school. Unlike most youths of his time, he took an unusual interest in the operation of the furnace, did a little amateur prospecting in the hills of Armstrong County, and carried on what might be termed extra-curricular activities in mathematics, with special emphasis on geometry, trigonometry, and surveying.

In 1872, when the country was on the threshold of a panic, his father had already suffered financial reverses, and Acheson, who had not yet celebrated his seventeenth birthday, was forced to turn his back upon school and seek a job.

Western Pennsylvania was rapidly becoming industrialized, being crossed by railroads and dotted with coal mines, oil wells, blast furnaces, as well as numerous factories and retail

establishments of one sort or another. Acheson's employment for the next seven years took him far afield and found him in such varied occupations as timekeeper, salesman, ticket clerk, oil-tank gauger, and surveyor.

This, briefly, provides the background, minus countless struggles and heartaches, for the young man who was destined to become an important aide to Thomas A. Edison; the inventor of an anti-induction telephone cable which he sold to George Westinghouse; the designer of an electric resistance furnace of great commercial significance; the discoverer of silicon carbide ("Carborundum"), the abrasive so important in mass-production machining operations; the first to establish a practical means for the large-scale conversion of amorphous carbon to the graphite allotrope, which process made possible the manufacture of electrodes so indispensable in electrochemistry and electrometallurgy; and a pioneer in the field of colloid chemistry, developing methods for reducing graphite and other solids to colloidal dimensions and subsequently adapting these colloids to a wide and diversified range of industrial applications.

This man, in addition to the products and processes cited above, brought into being many other materials and

devices for which the United States Government granted him some seventy patents.

Not satisfied simply to create, Acheson, eager to put his creations at the disposal of mankind, founded companies for the manufacture of abrasives, graphite powders, graphite electrodes, inks, and colloidal suspensions of graphite. Numbered among these are The Carborundum Company, Niagara Falls, N. Y.; the Acheson Graphite Company, -Niagara Falls (now a part of National Carbon Company, a division of Union Carbide and Carbon Corporation); Acheson Colloids Company, Port Huron, Michigan; and Acheson Colloids Limited, London, England.

During his lifetime, Acheson had numerous honors and awards bestowed upon him. In addition to having received the John Scott Medal on two occasions, he was also awarded the Count Rumford Medal, the Perkin Medal, and his own Acheson Medal. In 1928 he founded the Edward Goodrich Acheson Fund, which, under the trusteeship of The Electrochemical Society, provided a cash prize and the Edward Goodrich Acheson Medal "to the person who, in the judgment of the directors of the Society, shall have made such contribution to the advancement of any of the objects, purposes or activities, fostered or promoted by the Society, to merit such an award." The Society unanimously voted him the first recipient of his own medal for

his contributions to electrothermics.

The degree of Doctor of Science was conferred upon Acheson by the University of Pittsburgh in 1909, and five years later he was appointed an officer of the Royal Order of the Polar Star by the King of Sweden.

Dr. Acheson's long, productive life ended in New York City on July 6, 1931. It would not be out of place to quote briefly from one of the many tributes paid him at that time. On July 8th, the *Buffalo Courier-Express* commented editorially:

"Vision is said to be the keystone of greatness but Dr. Acheson's vision by and large appears to have been the zealous capitalization of the immediate moment in terms of maximum capability . . . He was a student of essences and his pathway was marked with the guiding stones of doing things well."

New Firm: Resources Research, Inc., specializing in solving air and stream pollution problems for industry and government agencies, formed by Dr. Louis C. McCabe, formerly of the U.S. Public Health Service; Frederick S. Mallette, research manager, American Society of Mechanical Engineers, and William S. McCabe, consulting geologist of Casper, Wyoming. The main office will be at 4435 Wisconsin Ave., Washington 16, D.C. Other offices are at 55 West 42nd St., New York, N.Y., and P.O. Box 1861, Casper, Wyoming.



COUNCIL

OFFICERS

President, Ray P. Dinsmore
President-elect, John H. Nair

Secretary, Lloyd Van Doren
Treasurer, Frederick A. Hessel

COUNCILORS

Johan A. Bjorksten, *Chicago Chapter*
John R. Bowman, *At-Large*
Dr. Johannes H. Bruun

Niagara Chapter
Emmett B. Carmichael

Alabama Chapter
Austin W. Fisher
New England Chapter

Harry L. Fisher, *At-Large*

Lloyd A. Hall, *At-Large*

K. M. Herstein, *At-Large*

W. N. Holmes, *At-Large*

Morris Katzman, *Western Chapter*

Donald B. Keyes, *Past President*

Guy A. Kirton, *Ohio Chapter*

John Kotrady, *New York Chapter*

Harold A. Levey, *Louisiana Chapter*

H. W. Mackinney,
New Jersey Chapter

Emil Ott, *At-Large*

Paul E. Reichardt,
Washington Chapter

George L. Royer, *At-Large*

M. Sittenfield, *Pennsylvania Chapter*

W. J. Sparks, *At-Large*

Charles L. Thomas, *At-Large*

Albin H. Warth, *Baltimore Chapter*

L. T. Work, *Past President*

Will You Come

Mar. 13, 1956. Washington Chapter. Luncheon. O'Donnell's Sea Grill, Washington, D.C., Speaker, Paul Gomory, of Hudson & Young. Subject: "Problems Arising When an Individual Attempts to Capitalize on Ideas and Inventions."

Mar. 27, 1956. New Jersey Chapter. Visit to Picatinny Arsenal. Assemble at 1:30 p.m., Bldg. 175, Picatinny Arsenal, Dover, N.J. (For arsenal visit, registration required by March 16th.) 4:45 p.m. Dutton Hotel, Dover, N.J., Annual Business Meeting. Social period and dinner. Reservations for dinner (\$2.75), Dr. F. A. Lowenheim, Metal & Thermit Corp., Rahway, N.J.

April 4, 1956. At M.I.T. Faculty Club. New England Chapter. Dinner. Award of Honor Scroll and Student Medals.

April 6, 1956. Chicago Chapter. "Young Chemists' Meeting," honoring student winners of AIC medals. Speaker, Dr. Ray P. Dinsmore, "Let's Talk About Your First Job." For reservations, H. F. Schwartz, CO 4-8800, Ext. 475.

April 20, 1956. Ohio Chapter. Annual Meeting. Fort Hayes Hotel, Columbus, Ohio. Morning: Trip to Battelle Memorial Institute and Ohio State University. Informal luncheon. Afternoon: Annual Business Meeting. Address by one of the national AIC officers. Evening: Informal Reception, Annual "Ohio Award Dinner." Presentation of the "Ohio Award."

April 26, 1956. New York Chapter. Meeting, 7:30 p.m. Knickerbocker Taproom of the Jacob Ruppert Brewery, 1639 Third Ave., New York, N.Y. Subject, "Tactics in Chemical Job-Hunting." Moderator: Carl Setterstrom, Chas. Pfizer & Co. Panel members: Dr. Bruce J. Miller, Union Carbide & Carbon Corp., Gordon Whitcomb, American Cyanamid Co., Dr. Sidney Sussman, Water Service Labs., John Fanning, Fanning Personnel Agency. Free beer and pretzels. College students and young chemists who have not yet found the right job, or others interested, are welcome.

April 27, 1956. Chicago Chapter. Speaker, Dr. Lawrence S. Kubie, Psychiatrist and member of staff, Yale University College of Medicine, "Personal Problems of Scientists." For reservations: H. F. Schwartz, Co 4-8800, Ext. 475.

May 2, 1956. Meeting Louisiana Chapter. Student Medal Awards. For Information: Mark F. Stansbury, Southern Regional Research Labs., 2100 Robert E. Lee Blvd., New Orleans, La.

May 3, 1956. New Jersey Chapter. Presentation of Honor Scroll. Newark, N. J.

May 9, 1956. The AIC President's Reception to the Officers, National Councilors, Members of the Annual Meeting Committee, and their wives. Hotel Statler, Boston, Mass.

May 9, 1956. National AIC Council and Board of Directors. Dinner Meeting. Statler Hotel, Boston, Mass.

May 10-11, 1956. Annual Meeting. The American Institute of Chemists, Inc. Hotel Statler, Boston, Mass. Theme: "The Chemist Looks at Communication." See ANNUAL MEETING Program Page 77.

May 29, 1956. Western Chapter. Dinner, University Club, Los Angeles, Calif. Honor Scroll award to George Parkhurst, senior executive, Standard Oil Co. of California. Presentation of student medals to outstanding group of senior students. For information: T. F. Bewley, Braun Corp., Los Angeles 54, Calif.

June 7, 1956. New York Chapter. An-

nual Dinner Meeting. Hotel Commodore, New York, N.Y. Presentation of Honor Scroll to Dr. Charles N. Frey, consultant and lecturer, Massachusetts Institute of Technology, Cambridge, Mass.

May 15-17, 1957. Thirty-fourth Annual Meeting. The American Institute of Chemists. Sheraton-Mayflower Hotel, Akron, Ohio.

Opportunities

Doris Eager, M.A.I.C.

Positions Available

Chemist or chemical engineer for chemical plant operation, with tremendous opportunity for advancement with growing concern. Age up to 45 years of age. Salary commensurate with qualifications. Location Metropolitan New York. Box 39, THE CHEMIST.

Analytical technicians: Biochemical laboratory of medical division. Location New York City. Box 31, THE CHEMIST.

Production chemist or pharmacist with some experience in the pharmaceutical industry. Position in Mid-west. Box 33, THE CHEMIST.

Development Chemist: M.S. degree and 1-2 years industrial experience; Dept. Head of Production area. Also Junior level positions in production. Pharmaceutical, fine organic, chemical company located in the metropolitan New York area. Box 35, THE CHEMIST.

Chemists, Mathematicians, Metallurgists, Physicists, and Electronic Scientists in Washington, D.C. area, in various Federal Agencies, salaries ranging from \$4,345 to \$11,610. Write U.S. Civil Service Commission, Washington 25, D.C. Ask for Announcement No. 46 (B).

Director of Research: Take charge of research department totaling approximately 200 employees. Should have experience in organic and inorganic. Must have had supervisory experience handling chemical engineers and directing pilot plant work. Age 40-45. Salary \$13,000 to \$20,000, plus benefits. Location Middle West. Box 37, THE CHEMIST.

OPPORTUNITIES

Chemists Available

Analytical Chemist, F.A.I.C., with experience in supervision of control department of ethical drug manufacturer, seeks position which offers possibility of advancement. Publications and membership in societies. Box 30. **THE CHEMIST.**

Twenty-eight years diversified chemical experience, including analytical, research, quality control, production development, equipment design, production supervision, technical service and sales promotion. Proven ability to increase production efficiency and lower operating costs. Box 32. **THE CHEMIST.**

Chemist, 37, 11 yrs. inorganic industrial experience: batteries, electroplating, glues and gelatines, textile, and general physical and chemical commercial testing seeks position in N.J. and environs. Box 34. **THE CHEMIST.**

AIC Activities

New Jersey Chapter

Chairman, Dr. Cecil L. Brown
Treasurer, Dr. William R. Sullivan
Secretary, Dr. Albert B. Scott
Merck & Company
Rahway, N.J.

National Council Representative,
Dr. H. W. Mackinney

Visit to Picatinny Arsenal

The New Jersey Chapter will visit Picatinny Arsenal, March 27th. Members and guests will assemble at 1:30 p.m., at Building 175, Picatinny Arsenal, Dover, N.J. After welcome from the arsenal officials, the group will visit the Nucleonics Research Laboratory, the Package Section and the rocket testing area, where the static firing of Jato type rockets will be witnessed.

Afterwards, the group will assemble at 4:45 p.m., at the Dutton Hotel, Dover, N.J., for the Chapter's annual business meeting, which will be followed by a social period and dinner.

PHOENIX

CHEMICAL LABORATORY, INC.

Specialists in Petroleum Products
Chemical Tests • Physical Tests

Qualification Tests

3953 Shakespeare Avenue

CHICAGO 47, ILL.

Annual Awards Meeting

The New Jersey Chapter will present its Honor Scroll and four student medals on May 3, at the Military Park Hotel, Newark, N.J., at 8:00 p.m. The Honor Scroll will be presented to H. F. Wakefield, manager of the Industrial Products Division of the New Product Development Department, Bakelite Company Division, Union Carbide & Carbon Corp. Dr. Foster Dee Snell, of Foster D. Snell, Inc., New York, N.Y., will discuss the recipient and his accomplishments.

Student medals will be awarded to four outstanding senior chemistry students from New Jersey Colleges.

The meeting will be preceded by dinner at 6:30 p.m. Reservations for dinner (\$6.00, including gratuity) should be made by April 30th, with Dr. A. B. Scott, Merck & Company, Inc., Rahway, N.J. (Rahway 7-1200, Ext 3197).

New York Chapter

Chairman, Richard L. Moore
Chairman-elect, Dr. Murray Berdick
Treasurer, Robert R. Dean
Secretary, George Fov
Shulton Inc., Fine Chemicals Div.,
Route 46, Clifton, N.J.
National Council Representative,
John Kotrady

Young Chemists to Hear About Job-Hunting Tactics

Young chemists and would-be chemists in the New York area will get some expert professional advice on "Tactics in Chem-

ical Job-Hunting" at the New York Chapter meeting Thursday evening, April 26th.

The subject will be discussed by a panel at the annual Young Chemists' meeting in the Knickerbocker Taproom of the Jacob Ruppert Brewery, 1639 Third Ave. (near 91st St.), New York, N. Y.

Moderator of the discussion will be Carl Setterstrom of Charles Pfizer & Co. Panel members will be: Dr. Bruce J. Miller, director of technical personnel at Union Carbide & Carbon Corp., Gordon Whitcomb, Personnel Department, American Cyanamid Co., Dr. Sidney Sussman of Water Service Laboratories, and John Fanning of the Fanning Personnel Agency.

The meeting will start at 7:30 p.m. and will feature free beer and pretzels. Anyone who is interested is invited to attend.

In announcing the subject, Richard L. Moore, chairman of the Chapter, said that the panel would describe the pitfalls awaiting a man with little or no experience who is seeking a chemical job. In order to avoid the pitfalls, it is necessary to know what they are. The panel will tell the audience how to write a resume, how to act in an interview, and how to sell yourself.

College students and young chemists who have not yet found the right job will benefit from attendance at this meeting.

Western Chapter

Chairman, Thomas J. Rollins

Chairman-elect, Dr. Frederick G. Sawyer

Vice-President, Alfred J. Webber

Treasurer, Thomas J. Kehoe

Co-Secretaries:

Gil Sinclair
1160 Hugo Reid Drive
Arcadia, Calif.

Donald K. Peterson
4328 W. 58th Place
Los Angeles 43, Calif.

National Council Representative,
Morris Katzman

Honor Awards Meeting

The Honor Scroll of the Western Chapter will be presented to George Parkhurst, senior executive, Standard Oil Com-

Honor Scroll to H. F. Wakefield

The 1956 Honor Scroll of the New Jersey AIC Chapter will be presented to H. F. Wakefield, manager, Industrial Products Div., New Product Development Dept., Bakelite Co., Div. of Union Carbide & Carbon Corp., at the Military Park Hotel, Newark, N. J., May 3, 1956.

pany of California, San Francisco, Calif., at a meeting of the Chapter at the University Club, Los Angeles, Calif., Tuesday, May 29, 1956.

At this meeting, student medals will be presented to an outstanding group of senior students in the Southern California Basin. Other student medal awards in the greater area of the Chapter's territory will be presented by AIC members in the respective colleges and universities.

For Your Library

Introduction to

Chemical Pharmacology

By R. B. Barlow, Methuen & Co., Ltd.
1955. 342 pp. \$6.25.

This book is the result of a course, first of its kind, offered at Oxford in 1945 to students in chemistry. The author, now a research fellow at Yale School of Medicine, was one of those who attended. The Foreword has been written by Dr. H. R. Ing who gave the lectures.

Like the course from which it stems, Dr. Barlow's book is a beginning, for up to this time little has been written on the structure-action relationships of drugs, even though organic chemists have long been fascinated by the subject. They were sure that there was a chemical effect of medicines on the human body, but they had not had the physiological or biological background to find that cause. Better

FOR YOUR LIBRARY

liaison between them and the pharmacologists has long been needed. Dr. Barlow is well qualified, since he is an organic chemist who has had the practical experience of testing the pharmacological activity of drugs.

He has grouped the drugs discussed here according to the sites in the body at which these substances may act. An appendix supplies the necessary background for those readers unfamiliar with anatomy, physiology or biochemistry.

It is hoped that many chemists, especially young chemists, will be challenged by this excellent volume to explore the fertile field which lies on that "curious and fascinating borderland between chemistry and biology."

—Dr. Frederick A. Hessel, F.A.I.C.

Accidental Scientific Discoveries

By *Bernard E. Schaar, F.A.I.C. Booklet.* 64 pp. Free to AIC members and those who write on company letterhead to Schaar & Co., 754 West Lexington St., Chicago 7, Ill.

This booklet, compiled and edited by Mr. Schaar, recently retired president of Schaar & Co., Chicago, Ill., contains fascinating stories about the discovery of Rayon, Insulin, Petroleum Jelly, Photosensitive Plates, Crystallography, Aniline Dyes, Plastics, Thiophene, Dental Amalgams, Benzene Ring, Oxygen, X-Rays, and Iodine, among others. The theme of the series is the preparedness of each scientist to seize upon chance occurrences to direct his investigation toward a successful goal.

Pocket Book of Chemical Technology

First American Edition. By *B. Stannett & L. Mitlin. Chemical Publishing Co., Inc.* 283 pp. \$4.75.

In their Preface, the authors state that the object of preparing this book was to supply a handbook of frequently needed information in a "less bulky and extensive form than in the very complete American Works." With this objective, a miscellany of data have been collected. Tables on Properties of Organic Compounds and on Properties of Inorganic Compounds have been abbreviated ex-

cessively. Other tables of dubious value, on Fluid Flow, Standard Pipe Dimensions, and Boilers and Fuels have been included. The main criticism is the use of British units rather than American units in many cases. The definition of quantum is incorrect. It is true that the currently available handbooks are bulky beyond the point of convenience, but the fact that the present volume is small does not make up for its defects.

—Karl M. Herstein, F.A.I.C.

The Measurement of Particle Size In Very Fine Powders

By *H. E. Rose. Chemical Publishing Co.* 127 pp. 5¼" x 6¾". \$2.75.

This book covers methods of determination of particle sizes in the micron-range, based on conventional procedures.

The Phase Rule

By *John E. Ricci. D. Van Nostrand Co., Inc.* 506 pp. 6¼" x 9¼". \$12.00.

This is a fine, systematic text book on the solid-liquid phase systems, mostly graphic with very little theory or quantitative data. The exposition is simple and clear. This book will be valuable to students.

Kinetic Theory of Liquids

By *J. Frenkel. Leningrad Physico-Technical Institute. Dover Publications, Inc.* 488 pp. 8" x 5½". \$3.95 cloth; \$1.95 paper.

This book contains an examination of the transition states of crystal, liquid, and gas, in view of the "hole" theory.

Kinetics and Mechanisms

By *A. A. Frost and R. G. Pearson. John Wiley & Sons, Inc.* 343 pp. 6¼" x 9¼". \$6.00.

This book contains a careful survey of the rates of chemical reactions in terms of the overall and intermediate chemical changes. The treatment is based on kinetic theory and various mathematical deductions are fully elaborated. Catalysis is considered for homogeneous systems only.

—Dr. John A. Steffens, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Verlag Chemie, Weinheim Bergstr.: *Rechentafeln*, by R. Krzikalla; 1956, 236 pp.; DM 12.—These tables, plus or minus 0.005% accurate, make it possible to ascertain the percentages of each element in any formula or to write down the empirical formulas of compounds whose percentage values have been established. With English, German, and French text and thumb index. Type faces are clear and paper and binding exceptionally good.

Verlag Paul Parey: *Biochemie der Spurenelemente*, by K. Scharer; 3rd ed., 412 pp.; DM 39.60.—The importance of 39 trace elements—from Al to Zr—for soils, plants, as well as to the nutrition of man and animal is presented in this painstaking work by one of the outstanding German agricultural chemists who documents his findings with 2,600 literature references and 8 color plates depicting the symptoms of deficiency diseases of plants.

Verlag Hans Carl, Nuremberg: *Fachwoerterbuch fuer Brauerei und Maelzerei*, by W. Fischer; 2nd ed., 344 pp., DM 18.50.—A German-English and English-German dictionary of interest to the brewing and malting industries, compiled with the help of experts in Europe and America.

Ferdinand Enke Verlag, Stuttgart-W: *Spektrochemische Betriebsanalyse*, by H. Moritz; 2nd ed., 255 pp. (65 ill.); DM 55.—The fundamentals of spectrochemical analysis, the equipment best suited for factory laboratories, and proved techniques for qualitative and quantitative analyses of minerals, ores, metals, alloys, and slags are discussed in a clear and concise manner. • *Lehrbuch der Chemie fuer Pharmazeuten*, by W. Awe; 10th ed. Parts 1-4 (published 1952 and '53 at DM 16.40 each) include the pp. 1-512 of a textbook for pharmacists, giving pertinent information concerning general and inorganic chemistry.

Something New

"Ultra-high Temperature Chlorinating Furnace. To handle halogenation of metal carbides, oxides, ores or slags at 4000°F." Information. Metal Chlorides Corp., Middleport, N.Y.

George Parkhurst To Be Honored

The Honor Scroll of the Western AIC Chapter will be presented to George Parkhurst, senior executive, Standard Oil Co. of California, at a meeting in the University Club, Los Angeles, Calif., on May 29, 1956.

"Kojic Acid in Commercial Quantities." Technical bulletin. Samples. Chas. Pfizer & Co., Inc., Chemical Sales Div., 630 Flushing Ave., Brooklyn, N.Y.

"CLEAR-VUE Distillator. Distillation apparatus." Bulletin 4030. Labline, Inc., 3070-82 W. Grand Ave., Chicago 22, Ill.

"Flash-Evaporator." Data Sheet. Arthur S. Lapine & Co., 6001 S. Knox Ave., Chicago 29, Ill.

"DU-AL No. 489. Alkaline compound to remove rust, paint, grease, etc." Information. Chemclean Products Corp., 610 Warren St., Brooklyn 17, N.Y.

"Polyethyleneglycol 400 Dilaurate (S1018A)." Plastic surface conditioner. Samples. Price list. Glyco Products Co., Inc., Empire State Bldg., New York 1, N.Y.

"Laboratory Chemicals Catalogue." Merck & Co., Inc., Dept. L, Rahway, N.J.

"Guide for Industrial Audiometric Technicians." Request it from Accident Prevention Dep't, Employers Mutuals of Wausau, Wausau, Wisconsin.

"Automatic Burette." Information. Meyer Scientific Supply Co., Inc., 1672 62nd St., Brooklyn 4, N.Y.

"Brochure on Dechema-Werkstoff-Tabelle, Part 4, dealing with materials and their resistance to chemical action." Information. Deutsche Gesellschaft fuer chemisches Apparatewesen, Frankfurt a.M., Rheingau-Allee 25, Germany.

SOMETHING NEW

"Heat Resistant Decals." Information, The Meyerord Co., 5323 West Lake St., Chicago 44, Ill.

"Annotated Bibliography on Use of Organolithium Compounds in Organic Synthesis, Supplement No. 3." Lithium Corp. of America, Inc., Rand Tower, Minneapolis 2, Minn.

"Pocket Manual of Data on Specialized Sodium Silicate Chemicals." Booklet. Diamond Alkali Co., Silicate, Detergent, Calcium Div., 300 Union Commerce Bldg., Cleveland 14, Ohio.

"Manpower Resources in the Biological Sciences." 53-pp. National Science Foundation. Price 40 cents. For sale by Superintendent of Documents, U.S. Gov. Printing Off., Washington 25, D.C.

"Small Scale Cowles Dissolver." Information. Morehouse-Cowles, Inc., 1150 San Fernando Rd., Los Angeles, Calif.

"Politol. Product for purifying & refining fats and oils." Bulletin and samples. Polychemicals Div., West Virginia Pulp & Paper Co., Charleston A, South Carolina.

"Science and Engineering in American Industry. Preliminary Report of a Survey of Research & Development Costs and Personnel in 1953-54." Report (30 cents each.) by National Science Foundation. Order from Superintendent of Documents, Washington 25, D.C.

"Encouraging Future Scientists: Materials and Services Available in 1955-56." Free from The Future Scientists of America Foundation of the National Science Teachers Association, 1201 16th St., N.W., Washington 4, D.C.

"Business Aid to Our Colleges and Universities." Booklet of 5 editorial messages. McGraw-Hill Publishing Co., 330 W. 42nd St., New York 36, N.Y.

"Foods and Nutrition Bulletins," by Ora Blanche Burright, F.A.I.C. Request list from The Pioneer Woman Publishing Co., Box 932, Denton, Texas.

"Chemical Statistics Handbook." 412 pp. \$3.00. Manufacturing Chemists' Association, Inc., 1625 Eye St., N.W., Washington 6, D.C.

Dr. Frey to be Honored

The New York AIC Chapter will present its Honor Scroll to Dr. Charles N. Frey, now consultant and lecturer at the Massachusetts Institute of Technology, Cambridge, Mass., at its Honor Awards meeting, June 7, 1956, at the Hotel Commodore, New York, N.Y.

Condensates

According to the *Employment Counselor*, about 35 per cent of the world's greatest achievements were by men of sixty to seventy years of age, 23 per cent by those of seventy to eighty, and 8 per cent by those over eighty, or a total of 66 per cent by those past sixty. The question arises, should scientists be retired?

DDVP (dimethyldichlorovinyl phosphate) appears to be effective against DDT-resistant insects but less toxic to humans and animals than most economic poisons.

By the use of molten zones to collect impurities, the Bell Telephone Laboratories have obtained germanium with only one part of impurity per 10-billion parts of metal.

THE LENTO PRESS, INC.

Distinctive Printing

441 Pearl Street New York, N. Y.
WOrth 2-5977

SEBACIC ACID PRICE REDUCED

Steadily lowering prices make this pure, long-chain Dibasic Acid available to all.

This now brings into focus many applications of this versatile pure chemical for the improvement of your present product and the development of new ones.



HACHEM SEBACIC ACID is a PURE chemical suitable for your most exacting developments.

OUTSTANDING FOR
High Temperature Stability • Built-in Flexibility
Maximum Light Resistance

so essential to Alkyds, Polyesters, Polyamides, Plasticizers, Synthetic Lubricants and production of your other high quality products.

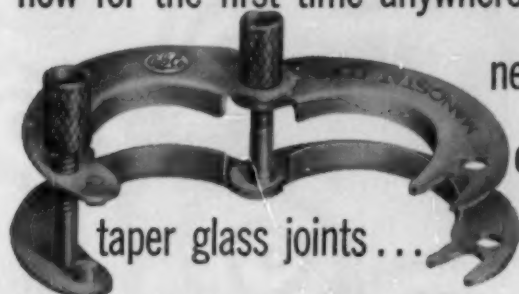
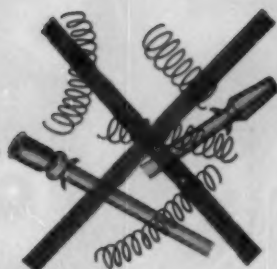


HACHEM DIVISION
WALLACE & TIERNAN INC.
25 MAIN ST., BELLEVILLE 9, N.J.

IN CANADA: W. C. Hardesty Co. of Canada, Ltd., Toronto.

When contacting the advertiser, please mention **THE CHEMIST**.

say goodbye to hooks and springs.
now for the first time anywhere...



new **T** Joint Clamps

designed for standard
taper glass joints... fits all makes of
joints... both Corning and Kimble... these are its
features... positive lock... one piece unit
... small and compact... simple screw
adjustment for clamping pressure...
attaches to apparatus set in place... cor-
rosion proof aluminum con- struction... De-
veloped for Emil Greiner by Manostat Corp.



G10945 CLAMP for T24/40 JOINT ONLY... each \$1.50; Dozen \$16.20

30-36 N. MOORE STREET • DEPT. 225, N. Y. 13, N. Y.



The EMIL GREINER Co.

When contacting the advertiser, please mention THE CHEMIST.

... does every job well

TYGON

*Flexible
Plastic*

TUBING

NON-TOXIC
NON-CONTAMINATING

EASY TO HANDLE
NON-KINKING

SMOOTH AND
SEAMLESS

EASY TO COUPLE
AND UNCOUPLE

Tough, flexible, chemically inert Tygon is the logical choice to safely handle every laboratory tubing application. It couples easily, won't kink or collapse. Glass-like clarity provides instant visual inspection. All required sizes are stocked by laboratory supply houses everywhere.

At Your
Laboratory
Supply House

PLASTICS and SYNTHETICS DIVISION

U. S. STONEWARE

Akron 9, Ohio